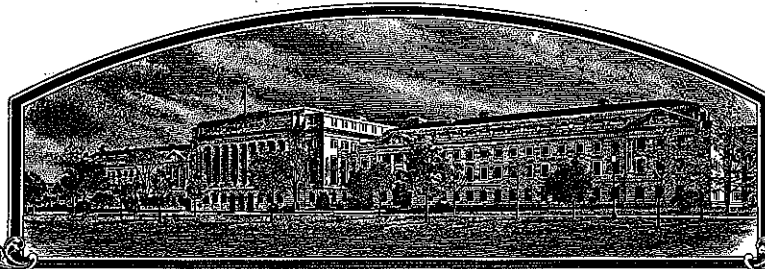


No.

200600036



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Holden's Foundation Seeds L. L. C.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE FOREGOING PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN, FIELD

'LH391'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this twenty-ninth day of April, in the year two thousand and eight.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

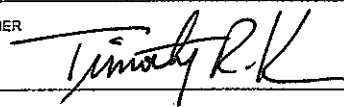
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Holden's Foundation Seeds L.L.C.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME None		3. VARIETY NAME LH391	
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP Code, and Country) 8350 Minnegan Road Waterman, IL 60556 U.S.A.		5. TELEPHONE (include area code) (815) 758-9281		FOR OFFICIAL USE ONLY PVPO NUMBER 200600036 FILING DATE Nov. 21, 2005	
		6. FAX (include area code) (815) 758-3117			
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Corporation		8. IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware		9. DATE OF INCORPORATION August 27, 1999	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. (First person listed will receive all papers)				F E E S R E C E I V E D FILING AND EXAMINATION FEES: \$ 4382.00 DATE 11/21/05 CERTIFICATION FEE: \$ 768.00 DATE 4/15/08	
Timothy R. Kain 8350 Minnegan Road Waterman, IL 60556 Michael J. Roth 800 N. Lindbergh Blvd. St. Louis, MO					
11. TELEPHONE (include area code) (815) 758-9281		12. FAX (include area code) (815) 758-3117		13. E-MAIL trkain@monsanto.com	
14. CROP KIND (Common Name) Corn, Field		15. GENUS AND SPECIES NAME OF CROP Zea mays		16. FAMILY NAME (Botanical) Graminae	
17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)			
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of Variety d. <input type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$3,652), made payable to "Treasurer of the United States" (Mail to the Plant Variety Protection Office)		19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act <input type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no", go to item 22) 20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, WHICH CLASSES? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED 21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS. <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED (If additional explanation is necessary, please use the space indicated on the reverse.)			
22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse.)		23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse.)			
24. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.					
SIGNATURE OF OWNER 		SIGNATURE OF OWNER			
NAME (Please print or type) Timothy R. Kain		NAME (Please print or type)			
CAPACITY OR TITLE Patent Scientist		DATE 11/17/05		CAPACITY OR TITLE	
				DATE	

INSTRUCTIONS

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable (*in the sense that it will reproduce an entire plant*) tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for \$3,652 (\$432 filing fee and \$3,220 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfilled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. **Retain one copy for your files.** All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301) 504-5518

FAX: (301) 504-5291

Homepage: <http://www.ams.usda.gov/science/pvpo/pvp.htm>

ITEM

- 18a. Give:
- (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
 - (2) the details of subsequent stages of selection and multiplication;
 - (3) evidence of uniformity and stability; and
 - (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
- (1) identify these varieties and state all differences objectively;
 - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
 - (3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, etc.
- 18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. (See Regulations and Rules of Practice, Section 97.103).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.

21. CONTINUED FROM FRONT (Please provide a statement as to the limitation and sequence of generations that may be certified.)

22. CONTINUED FROM FRONT (Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)

Sold in U.S. — December 2004

23. CONTINUED FROM FRONT (Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089. <http://www.ams.usda.gov/lsg/seed.htm>

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 3.0 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, sexual orientation, marital or family status, political beliefs, parental status, or protected genetic information. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

ST-470 (02-10-2003) designed by the Plant Variety Protection Office with Word 2000. Replaces former versions of ST-470, which are obsolete.

EXHIBIT AOrigin and Breeding History
LH391

LH391 was developed from the cross of LH277 x LH185 by selfing and using the conventional ear-to-row system of plant breeding. Yield, stalk quality, root quality, disease tolerance, late plant greenness, late plant intactness, ear retention, pollen shedding ability, silking ability and corn borer tolerance were the criteria used to determine the rows from which ears were selected during the development of LH381.

LH277 and LH185, the progenitors of LH391, are proprietary field corn inbred lines of Holden's Foundation Seeds, L.L.C..

Summer 1998	The inbred line LH277 (a proprietary Holden's inbred) was crossed to the inbred line LH185 (a proprietary Holden's inbred) in Iowa Field/Row 39101-39103.
Winter 1998-99	The S0 seed was grown and self-pollinated in nursery row 24273 in Hawaii.
Summer 1999	S1 ears were grown ear-to-row and self-pollinated in nursery range/row 4476 in Iowa.
Summer 2000	S2 ears were grown ear-to-row and self-pollinated in nursery row 8008 at Iowa.
Winter 2000-01	S3 ears were grown ear-to-row and self-pollinated in Hawaii in nursery row 20339.
Summer 2001	S4 ears were grown ear-to-row and self-pollinated in nursery row 53820 at Iowa.
Winter 2001-02	S5 ears were grown ear-to-row and self-pollinated in nursery row 11074 at Mexico.
Summer 2002	S6 ears were grown ear-to-row and self-pollinated in nursery row 23867 at Iowa.
Summer 2003	S7 ears were grown ear-to-row and self-pollinated in nursery row 28580 at Iowa.
Summer 2004	S8 ears were grown ear-to-row and self-pollinated in Iowa nursery row 74519-74528.
Winter 2004-05	S9 ears were grown ear-to-row and self-pollinated and final selection made in Hawaii nursery row/field #05KA4A26. Line coded as LH391.

EXHIBIT A
(cont'd)Statement of Stability and Uniformity

LH391 has shown uniformity and stability for all traits described in Exhibit C. It has been self-pollinated and ear-rowed for four generations, with careful attention to uniformity of plant type to ensure homozygosity and phenotypic stability.

Statement of Variants

The line is stable, uniform and no variant traits have been observed or are anticipated in LH391.

EXHIBIT BStatement of Distinctness

Holden's Foundation Seeds L.L.C. believes that Corn Variety LH391 is most similar to Corn Variety LH277, an inbred developed by Holden's Foundation Seeds L.L.C.

Corn Variety LH391 differ from Corn Variety LH277 at the following traits:

Trait	LH391	LH277
Anther Color	Green-Yellow (2.5 GY 8/8)	Purple (5 RP 5/6)
Cob Color	White (Lighter than 2.5 Y 9/2)	Red (2.5 R 4/8)
Ear Position	Pendent	Upright

Corn variety LH391 has green-yellow anther color, a white cob and pendent ear while comparative corn variety LH277 has purple anther color, a red cob and an upright ear position.

Description of Experimental Design

The corn varieties LH391, LH277 and CM105 were grown at the Waterman, IL observation nursery in years 2005-2006. The varieties were planted in 2 row plots with 15 plants per row in each of the three years. Trait data were collected on 10 random representative plants for most traits from each 2 row plot. Data on qualitative traits are usually collected on 10 plants from each 2 row plot. For Exhibit C all data were pooled and reported as means across the years for subject variety and the standard variety with standard deviation. The varieties are randomly planted in a 4.5 acre observation nursery which is located within a larger 18 acre field. Besides the observation nursery, this field consists of a research seed increase nursery and an IP seed inventory nursery. The location of each of these individual nurseries is rotated each year to a different location within the 18 acre field. Therefore subject inbreds are not planted adjacent to comparative or standard varieties and may be located in different areas of the larger field each year, therefore being influenced by spacial differences within the field. Growing conditions within the field are not uniform as there are some slight topographical variations such as lower areas which may accumulate and retain water or higher areas which are usually drier. The field is tiled and therefore a variety maybe planted close to a tile line while a comparative variety maybe planted further away and in a low spot within the field. Temporal varieties can exist as weather conditions from year to year can vary as well as planting dates can vary from year to year based on weather conditions. Weather conditions each year can vary the maturity rate of the varieties due to either favorable or unfavorable growing conditions.

Trait variability is not observed for each variety within its own test plot-plants are usually uniform and data are collected on the "most" representative plants- variability occurs due to spacial location of the test plot for that variety from year to year and to the temporal variation of weather conditions from year to year during the 2-3 years data are collected.

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EXHIBIT B
(cont'd)**Waterman Research Station**
Weather Data 2005-2006

Date	Average Precip. (mm)	Ave. Monthly Temp – Max. (F°)	Ave. Monthly Temp-Min (F°)	Ave. Monthly Rel. Humid.- Max (%)	Ave. Monthly Rel. Humid – Min (%)
June 2005	0.9	84.7	61.3	89.8	41.7
July 2005	2.0	84.9	61.7	93.4	44.7
August 2005	2.5	82.6	60.4	94.9	50.0
Sept 2005	1.8	79.9	55.0	94.3	44.3
June 2006	2.7	78.4	56.7	89.8	45.9
July 2006	2.3	84.2	64.6	93.5	55.4
August 2006	2.1	87.2	67.5	94.7	57.1
Sept 2006	1.6	80.0	61.6	90.1	50.8

United States Department of Agriculture, Agricultural Marketing Service
Science and Technology, Plant Variety Protection Office
National Agricultural Library Building, Room 400
Beltsville, MD 20705-2351

OBJECTIVE DESCRIPTION OF VARIETY
CORN (*Zea mays* L.)

Name of Applicant(s) Holden's Foundation Seed L.L.C.		Variety Seed Source	Variety Name or Temporary Designation LH391																															
Address (Street & No., or R.F.D. No., City, State, Zip Code and Country) 8350 Minnegan Road, Waterman, IL 60556			FOR OFFICIAL USE	PVPO Number 200600036																														
Place the appropriate number that describes the varietal characters typical of this inbred variety in the spaces below. Right justify whole numbers by adding leading zeroes if necessary. Completeness should be striven for to establish an adequate variety description.																																		
<p>COLOR CHOICES (Use in conjunction with Munsell color code to describe all color choices; describe #25 and #26 in Comments section):</p> <table border="0"> <tr> <td>01=Light Green</td> <td>06=Pale Yellow</td> <td>11=Pink</td> <td>16=Pale Purple</td> <td>21=Buff</td> </tr> <tr> <td>02=Medium Green</td> <td>07=Yellow</td> <td>12=Light Red</td> <td>17=Purple</td> <td>22=Tan</td> </tr> <tr> <td>03=Dark Green</td> <td>08=Yellow-Orange</td> <td>13=Cherry Red</td> <td>18=Colorless</td> <td>23=Brown</td> </tr> <tr> <td>04=Very Dark Green</td> <td>09=Salmon</td> <td>14=Red</td> <td>19=White</td> <td>24=Bronze</td> </tr> <tr> <td>05=Green-Yellow</td> <td>10=Pink-Orange</td> <td>15=Red & White</td> <td>20=White Capped</td> <td>25=Variegated (Describe)</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>26=Other (Describe)</td> </tr> </table>					01=Light Green	06=Pale Yellow	11=Pink	16=Pale Purple	21=Buff	02=Medium Green	07=Yellow	12=Light Red	17=Purple	22=Tan	03=Dark Green	08=Yellow-Orange	13=Cherry Red	18=Colorless	23=Brown	04=Very Dark Green	09=Salmon	14=Red	19=White	24=Bronze	05=Green-Yellow	10=Pink-Orange	15=Red & White	20=White Capped	25=Variegated (Describe)					26=Other (Describe)
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<p>STANDARD INBRED CHOICES (Use the most similar (in background and maturity) of these to make comparisons based on grow-out trial data):</p> <table border="0"> <tr> <td>Yellow Dent Families:</td> <td>Yellow Dent (Unrelated):</td> <td>Sweet Corn:</td> </tr> <tr> <td>Family Members</td> <td>Co109, ND246,</td> <td>C13, Iowa5125, P39, 2132</td> </tr> <tr> <td>B14 CM105, A632, B64, B68</td> <td>Oh7, T232</td> <td></td> </tr> <tr> <td>B37 B37, B76, H84</td> <td>W117, W153R</td> <td>Popcorn:</td> </tr> <tr> <td>B73 N192, A679, B73, NC268</td> <td>W182BN</td> <td>SG1533, 4722, HP301, HP7211</td> </tr> <tr> <td>C103 Mo17, Va102, Va35, A682</td> <td></td> <td></td> </tr> <tr> <td>Oh43 A619, MS71, H99, Va26</td> <td>White Dent:</td> <td>Pipecorn:</td> </tr> <tr> <td>WF9 W64A, A554, A654, Pa91</td> <td>CI66, H105, Ky228</td> <td>Mo15W, Mo16W, Mo24W</td> </tr> </table>					Yellow Dent Families:	Yellow Dent (Unrelated):	Sweet Corn:	Family Members	Co109, ND246,	C13, Iowa5125, P39, 2132	B14 CM105, A632, B64, B68	Oh7, T232		B37 B37, B76, H84	W117, W153R	Popcorn:	B73 N192, A679, B73, NC268	W182BN	SG1533, 4722, HP301, HP7211	C103 Mo17, Va102, Va35, A682			Oh43 A619, MS71, H99, Va26	White Dent:	Pipecorn:	WF9 W64A, A554, A654, Pa91	CI66, H105, Ky228	Mo15W, Mo16W, Mo24W						
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1. TYPE: (describe intermediate types in Comments section)		Standard Inbred Name CM105																																
2 1=Sweet 2=Dent 3=Flint 4=Flour 5=Pop 6=Ornamental 7=Pipecorn		2 Type																																
2. REGION WHERE DEVELOPED IN THE U.S.A.:		Standard Seed Source																																
2 1=Northwest 2=North central 3=Northeast 4=Southeast 5=South central 6=Southwest 7=Other		2 Region																																
3. MATURITY (In Region Best Adaptability; show Heat Unit formula in "Comments" section):																																		
DAYS	HEAT UNITS	DAYS	HEAT UNITS																															
7 8	1 5 8 8. 0 From emergence to 50% of plants in silk	68	1400.5																															
7 4	1 4 0 1. 5 From emergence to 50% of plants in pollen	64	1292.5																															
---	From 10% to 90% pollen shed	---	---																															
---	From 50% silk to optimum edible quality	---	---																															
---	From 50% silk to harvest at 25% moisture	---	---																															
4. PLANT:																																		
	Standard Deviation	Sample Size	Mean	Standard Deviation																														
1 9 9. 4 cm Plant Height (to tassel tip)	11.8	30	160.5	24.6																														
7 0. 9 cm Ear Height (to base of top ear node)	8.8	30	49.4	12.0																														
1 6. 7 cm Length of Top Ear Internode	2.7	30	11.7	2.0																														
___ Average Number of Tillers	---	---	---	---																														
1.0 Average Number of Ears per Stalk	0.0	30	1.0	0.1																														
1 Anthocyanin of Brace Roots: 1=Absent 2=Faint 3=Moderate 4=Dark			2																															
Application Variety Data		Standard Inbred Data																																

200600036

Application Variety Data				Page 2	Standard Inbred Data			
5. LEAF:				Standard Deviation	Sample Size	Mean	Standard Deviation	Sample Size
8.3	cm Width of Ear Node Leaf	0.9	30			7.1	0.7	30
67.1	cm Length of Ear Node Leaf	6.9	30			66.7	9.6	30
5.1	Number of leaves above top ear	0.3	30			5.7	0.6	15
26.4	degrees Leaf Angle (measure from 2nd leaf above ear at anthesis to stalk above leaf)	5.9	30			47.8	7.0	30
02	Leaf Color (Munsell code 5 GY 4/8)					02 (Munsell code 5 GY 4/8)		
1	Leaf Sheath Pubescence (Rate on scale from 1=none to 9=like peach fuzz)					2		
5	Marginal Waves (Rate on scale from 1=none to 9=many)					6		
5	Longitudinal Creases (Rate on scale from 1=none to 9=many)					5		
6. TASSEL:				Standard Deviation	Sample Size	Mean	Standard Deviation	Sample Size
2.1	Number of Primary Lateral Branches	0.8	30			5.3	1.2	30
16.5	Branch Angle from Central Spike	8.5	30			33.2	9.0	30
39.7	cm Tassel Length (from top leaf collar to tassel tip)	3.1	30			34.4	2.6	30
7.4	Pollen Shed (Rate on scale from 0=male sterile to 9=heavy shed)					6.2		
05	Anther Color (Munsell code 2.5 GY 8/8)					07 (Munsell code 2.5 Y 8/10)		
02	Glume Color (Munsell code 5 GY 4/8)					12 (Munsell code 2.5 R 5/8)		
1	Bar Glumes (Glume Bands): 1=Absent 2=Present					1		
7a. EAR (Unhusked Data):								
07	Silk Color (3 days after emergence) (Munsell code 2.5 Y 8/10)					07 (Munsell code 2.5 Y 8/10)		
02	Fresh Husk Color (25 days after 50% silking) (Munsell code 5 GY 4/8)					02 (Munsell code 5 GY 4/8)		
21	Dry Husk Color (65 days after 50% Silking) (Munsell code 2.5 Y 8/4)					21 (Munsell code 2.5 Y 8/4)		
3	Position of Ear at Dry Husk Stage: 1=Upright 2=Horizontal 3=Pendent					1		
2	Husk Tightness (Rate on scale from 1=very loose to 9=very tight)					9		
1	Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm) 3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm)					1		
7b. EAR (Husked Ear Data):				Standard Deviation	Sample Size	Mean	Standard Deviation	Sample Size
14.5	cm Ear Length	0.8	30			14.0	1.6	30
37.8	mm Ear Diameter at mid-point	1.2	30			38.0	1.4	15
106.3	gm Ear Weight	3.6	30			73.2	1.9	15
12.7	Number of Kernel Rows	1.0	30			13.9	0.9	15
2	Kernel Rows: 1=Indistinct 2=Distinct					2		
1	Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral					1		
9.6	cm Shank Length	2.3	30			6.8	2.0	15
2	Ear Taper: 1=Slight 2=Average 3=Extreme					2		
Application Variety Data					Standard Inbred Data			
Note: Use chart on first page to choose color codes for color traits.								

Application Variety Data			Page 3		Standard Inbred Data		
8. KERNEL (Dried):			Standard Deviation	Sample Size	Mean	Standard Deviation	Sample Size
10.5	mm Kernel Length	0.5	30	09.2	1.0	15	
8.5	mm Kernel Width	0.7	30	08.2	0.6	15	
4.6	mm Kernel Thickness	0.9	30	05.1	1.2	15	
42.1	% Round Kernels (Shape Grade)	2.6	500g	56.8	2.6	500g	
1 Aleurone Color Pattern: 1=Homozygous 2=Segregating (describe) _____					1		
19 Aleurone Color (Munsell code Lighter than 2.5 Y 9/2)					19 (Munsell code Lighter Than 2.5 Y 9/2)		
07 Hard Endosperm Color (Munsell code 5 Y 8/12)					07 (Munsell code 2.5 Y 8/8)		
3 Endosperm Type: 1=Sweet (su1) 2=Extra Sweet (sh2) 3=Normal Starch 4=High Amylose Starch 5=Waxy Starch 6=High Protein 7=High Lysine 8=Super Sweet (se) 9=High Oil 10=Other _____					03		
20.4	gm Weight per 100 Kernels (unsized sample)	1.1	2200 seeds	22.5	1.3	2000 seeds	
9. COB:			Standard Deviation	Sample Size	Mean	Standard Deviation	Sample Size
19.4	mm Cob Diameter at mid-point	1.2	30	26.2	1.3	15	
19 Cob Color (Munsell code Lighter than 2.5 Y 9/2)					14 (Munsell code 5 R 4/10)		
10. DISEASE RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); leave blank if not tested; leave Race or Strain Options blank if polygenic):							
A. Leaf Blights, Wilts, and Local Infection Diseases							
___ Anthracnose Leaf Blight (<i>Colletotrichum graminicola</i>)					7 Anthracnose Leaf Blight		
___ Common Rust (<i>Puccinia sorghi</i>)					___ Common Rust		
___ Common Smut (<i>Ustilago maydis</i>)					___ Common Smut		
___ Eyespot (<i>Kabatiella zeae</i>)					6 Eyespot		
___ Goss's Wilt (<i>Clavibacter michiganense</i> spp. <i>nebraskense</i>)					5 Goss's Wilt		
___ Gray Leaf Spot (<i>Cercospora zeae-maydis</i>)					4 Gray Leaf Spot		
___ Helminthosporium Leaf Spot (<i>Bipolaris zeicola</i>)..... Race _					8 Helminthosporium Leaf Spot..... Race 2		
___ Northern Leaf Blight (<i>Exserohilum turcicum</i>)..... Race _					3 Northern Leaf Blight..... Race 1		
___ Southern Leaf Blight (<i>Bipolaris maydis</i>)..... Race _					6 Southern Leaf Blight..... Race 0		
___ Southern Rust (<i>Puccinia polysora</i>)					___ Southern Rust		
___ Stewart's Wilt (<i>Erwinia stewartii</i>)					4 Stewart's Wilt		
___ Other (Specify) _____					___ Other (Specify) _____		
B. Systemic Diseases							
___ Corn Lethal Necrosis (MCMV and MDMV)					___ Corn Lethal Necrosis		
___ Head Smut (<i>Sphacelotheca reiliana</i>)					___ Head Smut		
___ Maize Chlorotic Dwarf Virus (MCDV)					___ Maize Chlorotic Dwarf Virus		
___ Maize Chlorotic Mottle Virus (MCMV)					___ Maize Chlorotic Mottle Virus		
___ Maize Dwarf Mosaic Virus (MDMV)..... Strain _____					___ Maize Dwarf Mosaic Virus..... Strain _____		
___ Sorghum Downy Mildew of Corn (<i>Peronosclerospora sorghi</i>)					___ Sorghum Downy Mildew of Corn		
___ Other (Specify) _____					___ Other (Specify) _____		
C. Stalk Rots							
___ Anthracnose Stalk Rot (<i>Colletotrichum graminicola</i>)					___ Anthracnose Stalk Rot		
___ Diplodia Stalk Rot (<i>Stenocarpella maydis</i>)					___ Diplodia Stalk Rot		
___ Fusarium Stalk Rot (<i>Fusarium moniliforme</i>)					___ Fusarium Stalk Rot		
___ Gibberella Stalk Rot (<i>Gibberella zeae</i>)					___ Gibberella Stalk Rot		
___ Other (Specify) _____					___ Other (Specify) _____		
D. Ear and Kernel Rots							
___ Aspergillus Ear and Kernel Rot (<i>Aspergillus flavus</i>)					___ Aspergillus Ear & Kernel Rot		
___ Diplodia Ear Rot (<i>Stenocarpella maydis</i>)					___ Diplodia Ear Rot		
___ Fusarium Ear and Kernel Rot (<i>Fusarium moniliforme</i>)					___ Fusarium Ear & Kernel Rot		
___ Gibberella Ear Rot (<i>Gibberella zeae</i>)					___ Gibberella Ear Rot		
___ Other (Specify) _____					___ Other (Specify) _____		
Application Variety Data				Standard Inbred Data			
Note: Use chart on first page to choose color codes for color traits.							

Application Variety Data	Page 4	Standard Inbred Data
11. INSECT RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); leave blank if not tested):		
Standard Deviation	Sample Size	Standard Deviation Sample Size
___ Banks Grass Mite (<i>Oligonychus pratensis</i>)		___ Banks Grass Mite
Corn Earworm (<i>Helicoverpa zea</i>)		Corn Earworm
___ Leaf-Feeding		___ Leaf Feeding
___ Silk Feeding : _____ mg larval wt.		___ Ear Damage
___ Ear Damage		___ Corn Leaf Aphid
___ Corn Leaf Aphid (<i>Rhopalosiphum maidis</i>)		___ Corn Sap Beetle
___ Corn Sap Beetle (<i>Carpophilus dimidiatus</i>)		
European Corn Borer (<i>Ostrinia nubilalis</i>)		European Corn Borer
___ 1st Generation (Typically Whorl Leaf Feeding)		___ 1st Generation
___ 2nd Generation (Typically Leaf Sheath-Collar Feeding)		___ 2nd Generation
___ Stalk Tunneling : _____ cm tunneled/plant		
Fall Armyworm (<i>Spodoptera frugiperda</i>)		Fall Armyworm
___ Leaf-Feeding		___ Leaf Feeding
___ Silk-Feeding : _____ mg larval wt.		
___ Maize Weevil (<i>Sitophilus zeamais</i>)		___ Maize Weevil
___ Northern Rootworm (<i>Diabrotica barberi</i>)		___ Northern Rootworm
___ Southern Rootworm (<i>Diabrotica undecimpunctata</i>)		___ Southern Rootworm
Southwestern Corn Borer (<i>Diatraea grandiosella</i>)		Southwestern Corn Borer
___ Leaf Feeding		___ Leaf Feeding
___ Stalk Tunneling : _____ cm tunneled/plant		
___ Two-spotted Spider Mite (<i>Tetranychus urticae</i>)		___ Two-spotted Spider Mite
___ Western Rootworm (<i>Diabrotica virgifera virgifera</i>)		___ Western Rootworm
___ Other (Specify) _____		___ Other (Specify) _____
12. AGRONOMIC TRAITS:		
7 Stay Green (at 65 days after anthesis) (Rate on a scale from 1=worst to 9=excellent.)		1 Stay Green
0 0 . 0 % Dropped Ears (at 65 days after anthesis)		0 0 . 1 % Dropped ears
0 0 . 0 % Pre-anthesis Brittle Snapping		0 0 . 0 % Pre-anthesis Brittle Snapping
0 0 . 0 % Pre-anthesis Root Lodging		0 0 . 0 % Pre-anthesis Root Lodging
0 0 . 0 % Post-anthesis Root Lodging (at 65 days after anthesis)		0 0 . 0 % Post-anthesis Root Lodging
_____ Kg/ha Yield of Inbred Per Se (at 12-13% grain moisture)		_____ Yield
13. MOLECULAR MARKERS: (0=data unavailable; 1=data available but not supplied; 2=data supplied)		
0 Isozymes	0 RFLP's	0 RAPD's
___ Other (Specify) _____		
REFERENCES:		
Butler, D.R. 1954. A System for the Classification of Corn Inbred Lines. PhD Thesis, Ohio State University. Emerson, R.A., G.W. Beadle, and A.C. Fraser. 1935. A Summary of Linkage Studies in Maize. Cornell A.E.S., Mem. 180. Farr, D.F., G.F. Bills, G.P. Chamuris, A.Y. Rossman. 1989. Fungi on Plant and Plant Products in the United States. The American Phytopathological Society, St. Paul, MN. Inglett, G.E. (Ed.) 1970. Corn: Culture, Processing, Products. Avi Publishing Company, Westport, CT. Jugenheimer, R.W. 1976. Corn: Improvement, Seed Production, and Uses. John Wiley & Sons, New York. McGee, D.C. 1988. Maize Diseases. APS Press, St. Paul, MN. 150 pp. Munsell Color Chart for Plant Tissues. Macbeth. P.O. Box 230. Newburgh, N.Y. 12551-0230 The Mutants of Maize. 1988. Crop Science Society of America. Madison, WI. Shurtleff, M.C. 1980. Compendium of Corn Diseases. APS Press, St. Paul, MN. 105 pp. Sprague, G.F., and J.W. Dudley (Editors). 1988. Corn and Corn Improvement, Third Edition. Agronomy Monograph 18. ASA, CSSA, SSSA, Madison, WI. Stringfield, G.H. Maize Inbred Lines of Ohio. Ohio A.E.S., Bul. 831. 1959. U.S. Department of Agriculture. 1936, 1937. Yearbook.		
COMMENTS (e.g. state how heat units were calculated, standard inbred seed source, and/or where data was collected. Continue in Exhibit D):		
Heat Unit Calculation: $GDU = \frac{\text{Daily Max Temp } (<=86^{\circ}\text{F}) + \text{Daily Min Temp } (>=50^{\circ}\text{F})}{2} - 50^{\circ}\text{F}$		
Supplemental data provided for pollen shed, ear weight, % round kernels and weight per 100 kernels from 2006 production parent test data and 2006 seed inventory data. Supplemental data for quantitative traits for the subject variety 'LH391' provided from seed inventory 2006 and 2007 and production parent test data.		

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). The information is held confidential until the certificate is issued (7 U.S.C. 2426).

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

1. NAME OF APPLICANT(S) Holden's Foundation Seeds L.L.C.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME LH391
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP and Country) 8350 Minnegan Road Waterman, IL 60556 U.S.A.	5. TELEPHONE (Include area code) (815) 758-9281	6. FAX (Include area code) (815) 758-3117
7. PVPO NUMBER		200600036

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. If no, please explain ☒ YES ☐

9. Is the applicant (individual or company) a U.S. National or a U.S. based company? If no, give name of country ☒ YES ☐ NO

10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?

☐ YES ☐ NO If no, give name of country

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?

☐ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (If needed, use the reverse for extra space):

Corn Variety LH391 was originated and developed by a breeder employed by Holden's Foundation Seeds, L.L.C. By agreement between Holden's Foundation Seeds, L.L.C. and the breeder, all rights to any invention, discovery or development are assigned to Holden's Foundation Seeds, L.L.C. No rights to such invention, discovery or development are retained by the breeder.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 6 minutes per response, including the time for reviewing the instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S) Holden's Foundation Seeds LLC	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 8350 Minnegan Road, Waterman, IL 60556 USA	TEMPORARY OR EXPERIMENTAL DESIGNATION
		VARIETY NAME LH391
NAME OF OWNER REPRESENTATIVE (S) Timothy R. Kain	ADDRESS (Street and No. or RD No., City, State, and Zip Code and Country) 8350 Minnegan Road, Waterman, IL 60556 USA	FOR OFFICIAL USE ONLY
		PVPO NUMBER 200600036

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Timothy R. Kain
Signature

3/17/2008
Date

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